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## The Structure of the U.S. Pork Industry

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Fewer farms produce hogs. In the two decades between the 1959 and 1978 Agricultural Censuses, a net of 1 $\frac{1}{3}$  million farms quit producing hogs. Whereas one-half of all farms reported having some hogs in 1959, only one-fifth had hogs in 1978.

Pork producers are larger and more specialized. In 1959, hogs were typically a minor enterprise. A majority were produced on farms marketing less than 200 head, and likely less than 3% were produced by farms marketing more than 1,000 head. By 1978, one-third of the hogs were produced on farms marketing more than 1,000 head. Hogs are becoming a major, or only, enterprise.

### Large Units

On the basis of a sample survey in 1981, we estimated that more than 2,000 operations would be marketing 5,000 head or more in 1981. There are now hundreds of large-size operations (business units of 5,000+ head) requiring full-time management plus hired labor. Studies also indicate a consistent rapid growth of marketings by this "large" group in the 1970s. This growth reflected both the entry of units reaching that size and increased marketings over time by units already that large.

### Reasons for Structural Change

Numerous factors probably explain this striking shift toward production in larger units. Much of the shift was associated with the postwar growth in the typical commercial farm and the dropping-out of agriculture of many small farms. The almost continuously profitable pork production of 1965-79 was associated with a rapid dropout of smaller producers. Much of the shift was associated with a growing specialization in farming. It is generally believed that one can compete better by doing one or two things expertly instead of trying to manage several enterprises. As a farmer's corn acreage rose from 160 to 640 or more, his 10-sow enterprise changed from an important income supplement to a nuisance. Undoubtedly, other important

factors were the developments in animal technology (production scheduling; feed additives; and feed, air and manure handling equipment) that permitted efficient, labor-saving, year round confinement.

This new technology and the general rising cost of labor relative to capital (up to 1979) facilitated the industrialization of hog production. Other factors facilitating the confinement approach were generally profitable hog prices for 1965-79 and an income tax structure that encouraged investment of earnings in more facilities. There may be small cost economies of size available to the large units. Certainly, there has been no persuasive evidence of any cost diseconomies of size that would limit operations from growing larger than 5,000 head. In fact, there are several operations that already exceed 100,000 head in annual marketings.

### Location and Ownership

Typically, hogs are produced where the feed is grown. About 78% of hog production is usually located in the North Central (NC) region (the block of North Dakota, Kansas, Michigan, Ohio and all in between). That percentage has been relatively constant for 30 years or more. However, a higher percentage of the smaller producers are in that region while about 33% of the large producers are outside the NC region. Pork production has traditionally been associated with large supplies of local feed grains. That link still holds, despite a few minor exceptions. Hence, hog production is minor in the West and in New England but is important in parts of the South.

Type of ownership is closely related to size of the unit. Those units below 1,000 head in size are mainly individual proprietorships, although there are some partnerships and a few family corporations. Frequency of ownership by corporations rises steadily as size increases (Table 1). About one-half of the large units are owned by corporations of which nearly one-half are non-family corporations or cooperatives.

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**Table 1. Legal-economic organization of hog producers, 1980.**

Type	Percent of Units by Size		
	1000-2499	2500-4999	5000+
Individual	59.0	42.8	28.4
Partnership	26.6	32.6	20.8
Corporate	14.4	23.8	47.6
Family-subchapter S	(5.0)	(10.3)	(9.7)
Family-regular	(8.5)	(10.9)	(15.2)
Non-family-subchapter S	(0.5)	(2.0)	(11.2)
Non-family-regular	(0.4)	(0.6)	(11.5)
Cooperative	—	0.6	2.8
Other	—	0.2	0.4
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: unpublished research of the authors.

## Specialization

Producers are classified on the basis of purchases and/or marketing into three types: (1) farrow-to-finish (FF), (2) feeder pig producers (PP), and (3) pig finishers (PF). While the FF type is found most often among all sizes of producers, their proportion declines among large producers (Table 2). Specialization in pig production or pig finishing increases as units get larger. While pig finishing has always been common among large units, specialized, large-scale, pig production was a development of the 1970s. Many of the large pig producers are called sow (or farrowing) corporations.

**Table 2. Percentages of hog production types by size, 1980.**

Size operation	Production type			Total
	Pig finisher	Farrow-to-finish	Pig producers	
(5000+)	20%	56%	24%	100%
(2500-4999)	16	65	19	100%
(1000-2499)	12	71	17	100%

Source: unpublished research of the authors.

A sow corporation produces feeder pigs for its several joint owners who typically plan to finish them on their individual farms. Since the first sow corporation was developed in Nebraska in 1968, some 3 or 4 hundred have been organized. In a 1980 survey of large operations, nearly half of that group's feeder pig marketings came from sow corporations. While originally centered in the western Corn Belt, sow corporations are found in several other states. The average sow corporation in 1982 had 7 to 8 owners, had been in operation since 1976, changed managers every three years, and produced about 8,000 pigs. Sow corporations are frequently begun as "large" units, whereas most other large operations begin much smaller.

According to the 1978 Census, 22% of the nation's pigs were marketed as feeder pigs. Generally, the FF system is more economical because it avoids the costs associated with pig marketing (trucking, buyer travel, commissions, shrink, stress and disease). However, the specialized enterprises are competitive with the FF systems when they have favorable feed or labor costs or when they have customers who wish to avoid either pig production or pig finishing.

There is still great variation among producers as to the extent that hogs are their major, or only, enterprise. Data indicate that the typical unit producing more than 2,500 hogs will receive a majority of its cash income from hogs while the typical unit producing less than 1,000 head will receive a smaller fraction. The typical large unit in our 1981 survey produced less than half of its feed grain needs, while a typical unit under 1,000 head produces most of its feed grain needs.

## Structure of the Stage Producing Breeding Stock

Continuing improvements in breeding stock are essential to the swine industry. While a majority of the breeding stock are self-produced, there is an important group of specialized suppliers of breeding stock. Few hard statistics are available. Hayenga, Christian and Boyd of Iowa State University have estimated annual sales of boars at 250,000-350,000 head and of gilts at 400,000-525,000 head.

Breeding stock suppliers were once numerous and relatively small purebred and commercial breeders. They have been joined by several corporate suppliers that are estimated by Hayenga and others to have a 15-20% share of the breeding stock market. Farmers Hybrid was estimated to have the largest share in the boar market in 1980, while DeKalb had the largest share for gilts.

## Vertical Integration

Ownership or contractual links between production and feed companies or packers are relatively minor. Packer feeding of slaughter hogs in the past decade has generally been less than 100,000 head per year; most packers do not feed hogs. Some (about 100) large hog producing units are owned by feed dealers or manufacturers.

Most contracting of slaughter hogs is simply for forward sale and should not be considered as forward integration. Instead, such contracts are a way for sale and pricing to be made a few weeks ahead of delivery. Generally, producers are more interested in contracts when they fear falling prices. Also, a very small percentage usually is contracted, but it apparently varies over time in line with farmers' interests.

Various types of production contracts have been tried in the past quarter century by feed manufacturers, packers and others. While production contracts similar to those for broilers are used in the Southeast to produce and/or finish some (10% or less) feeder pigs, they have achieved little importance there and even less in the Midwest. Sow leasing has been tried with little success.

## Future Structure

Projections must be tentative. The trend during the past half century and especially in the 1970s was clearly toward larger size. Hog production in the 1970s was moving rapidly toward being industrialized in confinement units of 1,000 head or more in size. It is too early to tell (at this writing in 1982) whether the severe financial difficulties of the hog business in 1980-81 have altered those trends. In 1979, USDA researchers Van Arsdall and Gilliam, projected only 80,000 pork producers by the year 2000 with 75% of the hogs being produced in units marketing 1,000 head or more annually. That 75% share for the year 2000 compares to the 33% in 1978. It is considered likely that the market share of such producers will be larger than those USDA projections. By the turn of the century, Tyson foods—the nation's largest pork producer as well as a big broiler integrator—may have some imitators. However, it is anticipated that most production will not be vertically integrated nor in the hands of large agribusiness firms.

Likely implications of the industrialization of hog production include:

- further reduction in seasonality of production,
- most slaughter sales will be direct to packing plant,
- increased pricing by carcass value,
- growth in size of hog producer benefits the large, corporate producer of breeding stock,
- large producers will look more to their commodity organization than to general farm organization, and the increased specialization makes farm incomes more variable.